

ABB Ability™ Performance Optimization for control systems – Harmony

Early detection of system performance irregularities



ABB Ability™ Performance Optimization for control systems – Harmony Service, identifies, classifies and helps prioritize opportunities to improve the performance of your control system. This service uses data collected during scheduled and ondemand analyses for comparison against best practices and standards to detect performance irregularities. This comparison quickly pinpoints issues, helping to improve system reliability, availability and performance.

Features

- Automatic, non-invasive data gathering with ABB's data collection tool
- On-demand analysis before or after maintenance and shutdowns
- Continuous visualization and proactive analysis of Key Performance Indicators (KPIs)
- On-site or remote access for customer personnel and ABB support
- Twice-a-year performance analysis by ABB experts identifies issues, finds trends and recommends performance improvements
- Configurable alerts (via email or SMS) are supplied when KPIs are outside site-specific thresholds

Benefits

- Increases system performance, availability and reliability by confirming complex system architecture and settings are aligned
- Minimizes the risk of system shutdown through early detection of potential problems
- Confirms hardware is up to date by ensuring all hardware versions are documented and compatible
- Decreases the time and cost spent pinpointing system problems
- Helps ensure uninterrupted performance by identifying errors between modules
- Reduces response time and travel expenses by providing remote access to ABB experts for troubleshooting

Increase control system reliability

Scheduled or on-demand monitoring of KPIs

Scheduled monitoring and analysis to quickly identify performance issues

Harmony is accessed through a service delivery platform conveniently deployed at your location. You can view data gathered through a web-based platform that is easily accessible by customer or ABB personnel.

With Performance Optimization for control systems – Harmony service, you get the advantage of proactive data analysis to greatly reduce the time and effort needed to identify node and module performance irregularities. Data is classified based on your specific KPIs to provide a list of problematic items that are then prioritized based on severity, criticality and/or financial impact. This analysis allows you to track and trend performance history more accurately, which leads to more informed decision making by your team, better system performance and higher availability.

More accurate troubleshooting with comprehensive KPIs

KPIs are determined for the following areas:

- **Node performance:** Node performance statistics and node event and error counters are monitored to identify nodes with high message rates, indicate when messages are lost or unable to find designated targets, and help isolate the source of potential faults. Exception reporting statistics are also measured, indicating where parameters should be adjusted to optimize control system operations.
- **Module performance:** CPU utilization is measured to pinpoint module loading and configuration issues. Segment cycles are analyzed to determine if the system has enough CPU free time, if individual segments are getting enough CPU time and if the cycle times are behind the optimal count.
- **Module status:** System thresholds, including error rates, controlway errors and memory overflow, are monitored to identify interrupted and/or discarded message rates, module-to module communication error rates and errors between redundant modules.



View, analyze or receive alerts on system performance Performance Optimization for control systems – Harmony service components

Simplified view of data and analysis

Access to and visualization of KPI data is provided through an easy-to-use interface that shows three separate views of the data:

- Raw data allows you and ABB service experts to view data associated with your node and module performance.
- KPI analysis presents a summary of KPIs, ranked by severity, that are outside set limits (Figure 1).
- KPI monitoring empowers you to specify your own set of rules for KPIs and displays each occurrence that falls outside a threshold.

Expert analysis helps detect potential problems

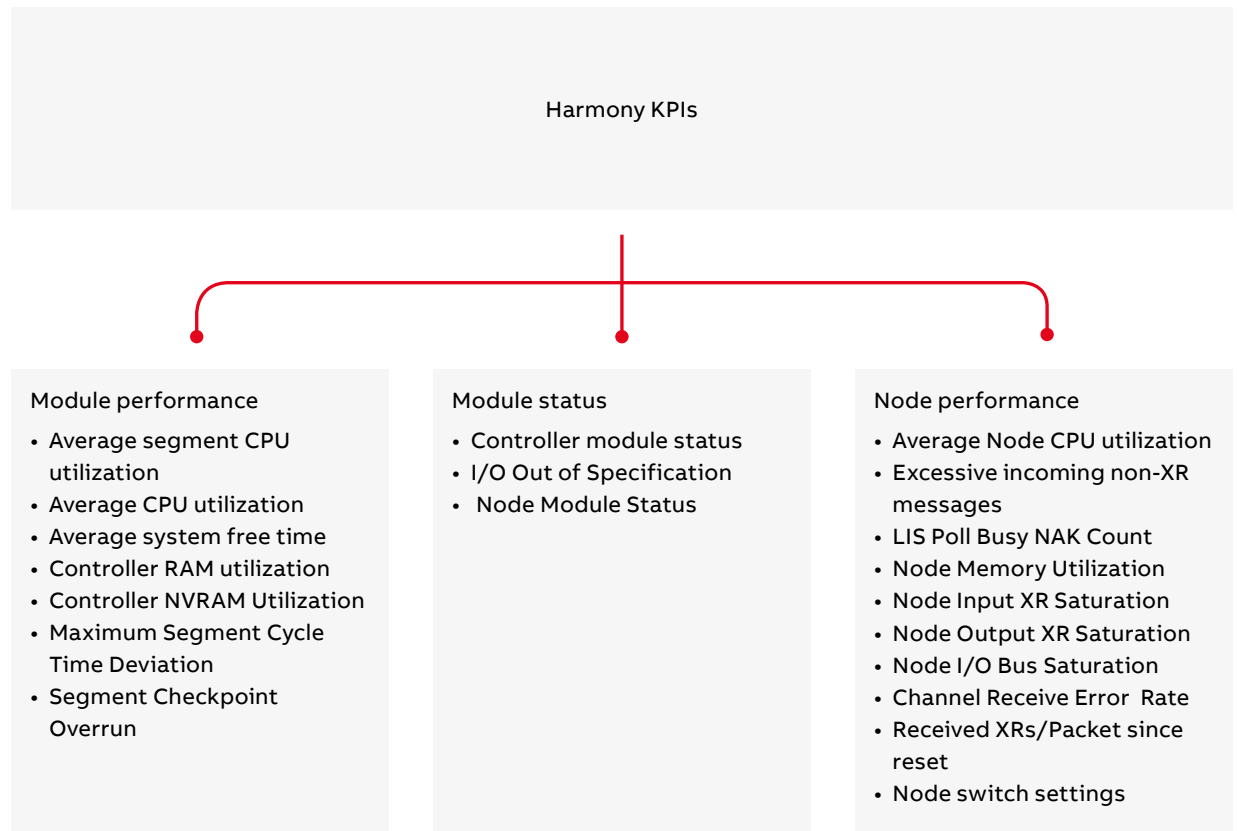
To ensure that your Harmony control system is performing at peak availability, ABB provides periodic

performance analyses. ABB experts evaluate data to look at the health of your system, determine the statistical accuracy of the KPIs and find trends that predict possible irregularities. The resulting performance report points to actions that will prevent potential problems and improve availability, reliability and system performance (Figure 2).

Critical notification when it matters most

To help prioritize issues that require immediate action, site-specific rules are applied to targeted KPIs. Any KPI that tracks outside of predetermined parameters triggers an instant alert by email or SMS. This quickly notifies you about issues that can compromise system availability, so you can address them as soon as they are detected.

02 Performance Optimization for control systems – Harmony service analyzes multiple KPIs for control systems and provides a prioritized list of issues to address to improve system performance



Secure connection for delivery of ABB services

On-site or remote access for customers and ABB experts

ABB Service Delivery Platform

ABB Service Delivery Platform is remote-enabled and provides a custom, secure connection to ABB services and experts. Deployed at a customer location, it enables delivery of local and remote services and provides both customers and ABB service experts a real-time view of KPIs and diagnostic and system data (Figure 3). Data collected from the service channel is highly secure as it remains on-site and requires user identification to view.

Assets

1. Control systems
 - 800xA
 - Advant
 - Freelance
 - Harmony
2. Low-Voltage drives
3. Mine hoists
4. Rotating machines

Processes

1. Control loops
2. Quality Control Systems (QCS)

Risk mitigation

1. Cyber security for control systems
2. Alarm Management for control systems

03 ABB service delivery platform connects ABB services with your equipment and processes via on-site visits or remote connection. You control access to the data collected and stored, as well as to the control network.

